Summary of "Gender-Related Differences in Practice Patterns in Alberta"

by M. Cree, Q. Yang, D. Johnson and K.C. Carriere

Purpose

This study investigates gender-related differences in practice patterns of female general practitioners in Alberta. With family or general practitioners making up 55% of practicing physicians and females currently in the minority, the increasing percentage of female family/general practitioners may have a substantial impact on patterns of physician practice in the future.

Approach

Information on fee-for-service practitioners was studied for all Alberta family or general practitioners practicing at least ten months in each of the four study years (April1 1995 to March 31, 1999) and seeing at least fifty patients each year.

Key findings

The following are the key findings from the study:

- The number of female family/general practitioners increased by 9%; male family/general practitioners decreased by 4.3%.
- Among newly graduated family/general practitioners (less than 10 years since graduation), males and females were equally distributed. Among the longest practicing family/general practitioners, only 18% were female.
- Approximately half of physicians billing less than $150,000 (or practicing less than a full-time equivalency) were female. Only 10% of physicians billing more than $272,600 (or working more than 1.5 full-time equivalency) were female. Overall, female family/general practitioners billed less than their male counterparts.
- In general, female family/general practitioners provided more assessment/counseling visits and fewer visits for diagnostic/therapeutic procedures than their male counterparts. Compared to male family/general practitioners in the same billing group, lower billing females had fewer visits for diagnostic/therapeutic radiology and high billing females had more other assessment visits. Female family/general practitioners billed a higher amount for obstetrical services than their male counterparts. Overall, females did fewer surgeries than males.
- Patients of female family/general practitioners were more likely to be younger and female.
- In assessing how practices and billings may change as the proportion of female family/general practitioners increases, the study examined the relative importance of physician characteristics in predicting payments (and therefore supply of services) for major assessments, other assessments and counseling services. Of the three services, the number of other assessment services was the most dependent on physician

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Characteristics such as practice volume and number of hours worked. Major assessments and counseling services relied primarily on the patient's physical or mental health.

Conclusions

This study found evidence that the increasing proportion of female family/general practitioners may lead to access problems as well as some division of services and patient populations along gender lines,

Assuming the same number of practitioners at the same fee level, the following practice and billing patterns are likely to occur as the proportion of female physicians approaches 50%:

- The supply of major assessment and counseling services should increase by 2% (or 20,939 services) and 3% (or 34,000 services) respectively. The cost increase for these services would be $250,000 and $600,000 dollars respectively.
- The supply of other assessment services is expected to fall by about 6% (or 676,000 services) creating the potential for a shortfall in these services. The reduction in other assessments would be accompanied by payment reductions of $1.5 million.
- As the percentage of female physicians increases, the projected deficit in services implies that there would be a shortage of physicians to satisfy the need for other assessment services.

The assumptions underlying these forecasts are somewhat tenuous. The supply and delivery of future services will depend on a complicated interaction between physicians and patients, moderated by allocated expenditures.

For more information

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Alberta Centre for Health Services Utilization Research

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Gender-Related Differences in Practice Patterns in Alberta

Technical Report

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ABSTRACT

Background:

Compared to male general practitioners, females have different practice patterns and tend to see more female patients. As the proportion of female general practitioners increases across Canada, there is concern that some patients will go unserved and there will be a shortage of some physician services.

Objective:

To evaluate the gender-related impact on services provided by general practitioners in Alberta.

Methods:

The study proceeded in two phases. In phase one, we examined administrative data for two fiscal years (1994/95 and 1998/99) on Alberta fee-for-service general practitioners serving Edmonton residents. Using t-tests, average payment, services, and visits were compared by gender across 16 physician services. In phase two, administrative data on all general practitioners practicing at least ten months of each year and seeing at least 50 patients in fiscal years 1994/95 to 1998/99 were examined. Multiple linear regression models were developed to predict the physician's average payment for assessment and counseling services on the basis of various physician and patient characteristics.

Results:

Payments for major assessments and counseling proved to be primarily dependent on the patient's physical or mental health. Billings for other assessment services were largely related to the physician's practice volume and number of hours worked. As we approach a 50/50 split in the number of male vs. female general practitioners, we forecast an adequate supply of major assessment and counseling services and a shortfall of other assessment services.

Conclusion:

The changing gender-demographics of the general practitioner population may lead to access problems and an increasing division of services and patients along gender lines. Because the assumptions underlying our models are somewhat tenuous, periodic monitoring is important to capture emerging access.

INTRODUCTION

Over the past thirty years, the proportion of female physicians practicing in Canada has increased from 7% to 26% (1). Approximately 50% of new medical students are female (1), and this proportion is bound to increase as older doctors retire. The proportion of female trainees varies widely depending on medical specialty, ranging from 7% (urology) to 66% (obstetrics, gynecology, and pediatrics). Based on the preferences of medical students expressed in the Canadian Resident Matching Service (1997), these proportions are expected to rise because some fields are becoming increasingly attractive to females (such as family medicine) while others are remaining male-dominated (surgery, for example) (2). Because the field of family medicine is particularly popular among female physicians, the proportion of females is increasing in this field and this trend is expected to continue for some time. In 1997, 53% of trainees in family medicine were female, and 40% of female graduating students (compared to only 30% of male graduating students) expressed a preference for family medicine in the Canadian Resident Matching Service.

Male and female family physicians/ general practitioners have been found to differ in terms of the characteristics of the patients they see, conditions managed, practice patterns, and billing levels. Compared to patients of male family physicians/general practitioners, a higher proportion of the patients of female family physicians/general practitioners tend to be younger (3) and female (4-9). Female family physician/general practitioners are also more likely to manage problems that are either sex-related (3;4;6;10) or psychosocial (3-5). It has even been suggested that male and female family physician/general practitioners may become 'semi-specialized' as females come to manage more female-related, endocrine, general, and psychosocial problems than males do (11). In addition to patient differences, practice patterns of male and female family physician/general practitioners have been found to differ. Findings of one Ontario study indicated female family physician/general practitioners saw fewer patients per week, had fewer office hours per week, and spent an average of six more minutes in the office per appointment (12). Other research has also found that female physicians work fewer hours (one third of Canadian female physicians work part-time) (4;13), spend more time with each patient (3), are more likely to be in group practice (4;12), have more career

interruptions (14), and tend to spend a higher proportion of practice time in the office (15). These gender-related differences in practice patterns may result in discrepancies in average billings and billing levels between male and female physicians. Among family physician/general practitioners in Ontario, females had lower average billings (16) and most of the high-billing family physician/general practitioners were found to be males in high-volume practices (17). In contrast, other research has found that because women family physician/general practitioners provide more psychotherapy, counseling, and order more laboratory tests, costs per service and per patient were higher for women(15).

Among practicing family physician/general practitioners in Alberta, females are currently the minority. However this will change if present trends continue. With family physician/general practitioners making up 55% of practicing physicians in Alberta, the more confined practice patterns of female family physician/general practitioners would be expected to have a substantial impact on patterns of practice in Alberta. Assuming practice patterns remain unchanged, when we reach the time when there are equal proportions of male and female family physician/general practitioners, projections indicate that there may be up to 9% fewer out-of-office services (obstetrics, in-hospital care, home visits, emergency work, and residential care of the elderly) or 10% fewer services provided in office settings (12). Some evidence suggests that family physician/general practitioners may become semispecialized, therefore eliminating the generalist (11). There are also concerns that some patient populations may go unserved because female physicians are more likely to serve younger, female patients (18). Changes in billings and costs will likely reflect the fact that female family physician/general practitioners tend to work fewer hours but provide more counseling and laboratory services. For planning purposes, the present study evaluates the possible impact of changing gender-demographics on services to be provided in the future.

METHODS

Study Sample and Data Collection

The study proceeded in two phases: the objective of phase one was to identify gender differences in billing patterns among general practitioners providing services to Edmonton residents; the goal of phase two was to examine how practices and billings may change as

the proportion of female physicians increases, if current trends were to continue.

Phase 1

We examined data for two years (1994/95 and 1998/99) on Alberta fee-for-service general practitioners practicing in any health region in the province and providing services to Edmonton residents. From the Alberta Physician Claims and Alberta Physician Stakeholder databases, we collected information on the physician's sex, year of graduation, and income. Physicians were categorized according to: when they graduated (within the past 10 years, 11 to 25 years ago, or more than 25 years ago); and income (those billing less than full-time-equivalent general practitioners, billings of one to 1.5 full-time-equivalent general practitioners, and billings of greater than 1.5 full-time-equivalent general practitioners). The likelihood that a physician's patient was receiving premium subsidy, identified in the Alberta Population Registry database, was also taken into account when classifying physicians. We considered the premium subsidy status indicative of the socioeconomic status of a physician's patients, a patient being classified as subsidized if he or she was receiving any (full or partial) subsidy of their Alberta Health Care Insurance Plan premiums. Physicians were grouped based on whether their practice contained a low percentage of subsidized patients (15% or less), an average proportion of subsidized patients (16% to 25%), or a high proportion of subsidized patients (more than 25%).

In the years in question, Alberta general practitioners/family physicians billed for sixteen types of services (see Table 1). Across these services, we investigated the following variables: the amount billed, the number of services provided, and the number of visits patients made for each service type.

Phase 2

To study the impact of demographic shifts in physician gender on practice patterns and billings, some of the services exhibiting significant gender differences were examined in a more detailed four-year analysis (1995/96 to 1998/99). We selected all Alberta general practitioners practicing at least ten months in each of the four years and seeing at least fifty patients each year. For each of the service types we examined, the outcome variables of interest were the average billing amount, the average number of services, and the average number of visits. One visit was defined as one claim for

reimbursement per patient per day. In addition to the variables examined in phase one, the following physician and patient variables were also considered.

Physician Variables

From the Alberta Physician Claims and Physician Stakeholder databases, we collected information on what percentage of services and payments made were for services occurring in the physician's office and the average number of patients seen daily on days when the physician saw at least two patients. Physicians were grouped as to whether they saw: 19 or fewer patients, 20 to 25, 26 to 30, or more than 30 patients.

Patient Variables

To clarify a given general practitioner's client base, we first identified the patients who visited him or her most frequently during each year. The patient's health region of residence was identified from the Alberta Physician Claims database, and patients were classified into two groups: those living in the Capital or Calgary Health Regions and those living in other health regions. From this database, we also gathered information on the number of consultative referrals made for each patient and whether a patient had three or more serious medical problems related to four indicators of health status (19, 20). In gauging a patient's state of health, the advantage of health status rather than some other measure of comorbidity is that it encompasses social functioning and disability in addition to the number of medical conditions (21). A patient was identified as having a serious medical condition if he or she had at least two annual physician visits in which this condition was diagnosed. The number of mental health visits made by patients was identified by a series of diagnosis codes (International Classification of Diseases, ninth revision codes 290 through 319). While each physician claim for reimbursement contains three diagnosis fields, only the primary diagnosis field was used to identify medical conditions and mental health visits because it provided the most complete and relevant description.

For each patient, the sequential pattern of provider care was estimated. This estimate assumes values between 0 (low) and 1 (high) depending on the patient's tendency to visit the same physician, and is considered to be the most appropriate to use for a patient population with chronic illness (22). Essentially, a patient alternating between two physicians will have low continuity of care (a score

approaching 0) while a patient making several sequential visits to the same physician will have high continuity of care (a score approaching 1).

The Alberta Morbidity database contains information on whether a patient has been admitted to the hospital or not. Finally, the patient's sex and age was extracted from the Alberta population registry database.

STATISTICAL ANALYSIS

Phase 1

We examined temporal trends for two years (1994/95 and 1998/99) on general practitioners with patients living in Edmonton. For this same group of practitioners in 1998/99, we identified those services exhibiting gender differences by performing t-tests to compare average payments, services, and visits by gender across the 16 service types. Given that a small number of physicians billed for a very large number of services (Table 1), some extreme values were removed prior to the analysis. To identify these outliers, the interquartile range (IQR) was calculated. Any observation more than three times the IQR below the first quartile or more than three times the IQR above the third quartile was labeled as an unusual observation and omitted for the purpose of building a robust model.

Phase 2

Because the correlation between payments and visits or services was high ($r = 0.97$ or above) for each of the services analyzed in this phase, we chose to model only payment. Any physician with a studentized residual larger than 3 or less than –3 was identified as an outlier and removed prior to the analysis. Using multiple linear regression, we modeled the log of the four-year average payment for the remaining physicians. While most of the input variables were four-year averages, we used the 1998/99 value for the number of years since graduation. We also included interaction terms between physician sex and all of the independent variables.

Continuous input variables were dichotomized to facilitate interpretation, with categories chosen according to the median value for physicians in 1998/99. For example, approximately half of the physicians in 1998/99 had more than 90% of their services and

payments for services associated with in-office visits. Therefore, the percentage of in-office services and the percentage of payments for in-office services were categorized as 90% or less or greater than 90%.

Similarly, the following patient variables were dichotomized for each physician. Percentage of female patients: 50% or less or over 50%; percentage of patients aged 65+: 10% or less or over 10%; percentage of Capital or Calgary Health Region patients: 90% or less or over 90%; percentage of patients with three or more serious medical conditions: 1% or less or over 1%; percentage of hospitalized patients: 5% or less or over 5%. Patients were also grouped according to whether they had one consultative referral or more than one referral. The percentage of patients with one referral and the percentage of patients with more than one referral were then dichotomized for each physician into 20% or less or over 20%. For the number of mental health visits, patients were separated according to whether they made one or more than one visit. Physicians were then grouped according to whether: the percentage of patients making one mental health visit was 10% or less or more than 10%; the percentage of patients making more than one mental health visit was 5% or less or more than 5%. Finally, patients with low (less than 0.5) continuity of care or patients with high (0.9) continuity of care were identified. For each physician, the percentage of patients with low continuity of care was calculated and dichotomized whereupon the physician was grouped into the categories of 50% or less, or more than 50%. The percentage of patients with high continuity of care was grouped into 20% or less, or more than 20%.

RESULTS

Phase 1

While the total number of general practitioners providing care for Edmonton residents remained relatively constant for fiscal years 1994/95 (2,409 general practitioners) and 1998/99 (2,404 general practitioners), there was a 9% increase in the number of female general practitioners which was offset by a 4.3% decrease in the number of male general practitioners. Payments for general practitioners serving Edmonton residents (unadjusted for physician service fee increases) increased approximately 6% between 1994/95 and 1998/99. However, there was a large variation by service: payments decreased for some services (other assessments, minor

surgery, and hospital care days) but more than doubled for other services (consultations and miscellaneous). Compared to 1994/95, both male and female general practitioners performed more consultations, major assessments, counseling, surgical assistance, obstetrical, other diagnostic/therapeutic services, and special services in 1998/99. Fewer other assessments, hospital care days, and minor surgeries were billed by both genders in 1998/99 than in 1994/95 (Table 2). Billings for the remaining four services (special calls, major surgery, anesthesia, miscellaneous) decreased for females but increased for males between the two years.

Among the 2,404 practicing family physicians/general practitioners providing services to Edmonton residents in 1998/99, 797 (33%) were female. The percentages of physicians in the low-, medium-, and high-billing groups were 45%, 48%, and 7%, respectively. The percentage of females in the low-, medium-, and high-billing groups were 67%, 23%, and 10%, respectively. Almost half (46%) of Alberta's family physicians/general practitioners had been practicing for 10 to 25 years, with 34% of these family physicians/general practitioners being female. There was an equal distribution of males and females among newly graduated family physicians/general practitioners (<10 years since graduation), however only 18% of the longest practicing family physicians/general practitioners were females.

In general, female family physicians/general practitioners tended to carry out more assessment and counseling visits and fewer visits for diagnostic/therapeutic procedures than males did. The service most often billed for was the other assessment, accounting for approximately three quarters of the total services billed in both years and associated with approximately 70% of the total payment made to Edmonton general physicians.

An additional 10% of the total payment made to general practitioners was for major assessments; accounting for approximately 14% of total payment made to females and 9% of payment made to males. While notable gender differences emerged in billings for several services, we chose to investigate major assessments, other assessments, and psychotherapy/counseling in more detail in the second phase of the analysis. These three services were chosen because they were very commonly provided by general practitioners as of this time period.

Phase 2

For all three services, common gender differences emerged. Female general practitioners more commonly provided a high proportion of in-office services and saw fewer patients per day. The practices of female general practitioners, relative to those of their male counterparts, contained, on average, a higher proportion of female patients and a lower proportion of senior patients and patients residing outside the Capital or Calgary Health Regions.

Major Assessment Results

In each of the four study years, a higher proportion of female general practitioners performed major assessments than males (17% and 11% respectively). During these four years in Alberta, there were 2,303 general practitioners who practiced at least 10 months of each year, saw at least 50 patients, and billed for this service at some point. We removed 49 (2.1%) physicians with studentized residuals larger than 3.0 or less than -3.0. Forty-two of these physicians were males (3% of all male physicians in the sample) and the remaining seven were females (1% of all female physicians in the sample). These 49 physicians differed from the other physicians in having a lower number of visits, services, payment amounts and full time equivalency values. The seven females removed were recent graduates.

The model developed on the remaining 2,254 physicians explained 54.5% of the variation in log payment. The percentage of hospitalized patients accounted for the largest portion (21.2%) of the total variation. Income and the percentage of patients with one referral were also influential (explaining 8.8% and 8.2% of the variance respectively). Daily patient volume (2.3%) and high continuity of care (1.1%) were the only other variables to account for more than 1% of the total variation.

Table 3 tabulates detailed relative ratios of payments, along with their 95% confidence intervals. Major assessment payments almost doubled for full-time physicians (full time equivalency 1-1.5 or 1.5+) and were 1.6 times higher for physicians with a high percentage of hospitalized patients. Payments for major assessment were also 40% to 50% higher for physicians: seeing a lot of patients per day; with a high percentage of their patients having one annual referral; with a high percentage of high-continuity-of-care patients.

Other Assessments Results

This service accounted for approximately 60% of the total billing for this group of general practitioners each year. Of a total of 2,326 physicians, 82 outliers (studentized residual larger than 3 or less than -3) or 3.5% of physicians were removed. The 82 excluded general practitioners included 24 females and 58 males, comprising approximately 3% of both female and male general practitioners. The payment, number of visits, services and full time equivalencies were lower for these general practitioners than the others. On average, these 82 general practitioners had graduated earlier than the others.

The model developed on the 2,244 remaining physicians explained 74.3% of the total variation in other assessment payments. In the model, the number of patients seen by a general practitioner in a day was the most significant, accounting for 65% of the total variance. Full time equivalency accounted for an additional 4.8% of the variation. The other variables, while significant at the 0.05 level, explained less than 1% of the variance.

Examining the relative risk ratios of payments for other assessment services (Table 4), payments were roughly doubled for physicians working the greatest number of hours (full time equivalency 1.5+) and those seeing the most patients per day.

Psychotherapy/Counseling

Payment for these services comprised approximately 8% of the total billing of female general practitioners and 5% of that of males. Among 2,156 physicians billing for this service, we removed 10 with studentized residuals larger than 3 or less than -3. The ten omitted general practitioners, one female and nine males differed from the others in exhibiting lower figures for number of services, visits and payment amounts.

The model explained 30% of the total variation in psychotherapy/ counseling services, with the most important predictor being the percentage of patients with two or more mental health visits (14.7% of the variance). The percentage of patients from either the Calgary or Capital Health Regions was also important, accounting for an additional 6.3% of the variance. Percentage of patients with one mental health visit (2.2% of the variance), the physician's years since graduation (2.7% of the variance) and daily patient volume (1.7% of

the variance) were the other variables explaining more than 1% of the variation.

Table 5 displays the detailed relative ratios to predict payments for psychotherapy/counseling. Payments were 3.5 times higher if a physician had a high proportion of patients making two or more annual mental health visits. Psychotherapy/counseling visits were approximately doubled for physicians having a high percentage of patients making one annual mental health visit, or those with a lot of patients from the Capital/Calgary Health Regions. On the other hand, payments were roughly halved for physicians graduating more than 25 years ago and those seeing at least thirty patients per day or having more senior patients.

DISCUSSION

This study found indications that changes in the demographic distribution of general practitioners along gender lines could lead to access problems, if current practice trends were to continue. Shifting gender demographics are also being accompanied by what may well be an increasing division of services and patient populations along gender lines. In comparing the billing patterns of male and female physicians, interesting gender differences emerged. For all services combined, females billed less than males on average. A higher percentage of female general practitioners billed for major assessments, minor assessments, and counseling services. Combined, these three services comprised over 90% of services billed in both 1994/95 and 1998/99. Interestingly, there were more physicians for Edmonton residents in Phase 1 than physicians billing for major assessments in Phase 2. This may be related to the more rigourous selection procedure in Phase 2, where we selected physicians practicing ten months of each year and seeing at least 50 patients.

Practice characteristics also differed between female and male physicians. For major/other assessment and counseling services, the patients of female general practitioners were more likely to be younger, perhaps reflective of the tendency for older physicians to have older patients. As in past research, it was found that female physicians also had more female patients (4-9).

In assessing how practices and billings may change as the proportion of female physicians increases, we examined the relative importance

of physician characteristics in predicting payments (and therefore supply of services) for major assessments, other assessments, and counseling services. Of the three services, the number of other assessment services was the most dependent on physician characteristics such as practice volume and number of hours worked. Major assessment and counseling services were largely functions of the patient's physical or mental health.

How will practices and billing patterns change as the proportion of female physicians approach 50%? Assuming the same number of general practitioners at the same fee level, the supply of major assessment and counseling services should have undergone an increase of about 2% (or 20,939 services) and 3% (or 34,000 services) respectively. In terms of payments, this translates into an additional quarter of a million dollars to be spent on major assessment services and another 600,000 dollars paid out for counseling. On the other hand, the supply of other assessment services is expected to fall by about 6%, creating the potential for a shortfall in these services. This drop of 676,000 other assessment services would be accompanied by payment reductions of 1.5 million dollars. That is, as the proportion of female and male general practitioners draw closer together, the projected deficit in services implies that there would be a shortage of physicians to satisfy the need for other assessment services.

Clearly, the assumptions underlying these forecasts are somewhat tenuous. The supply and delivery of future services will depend on a complicated interaction between physicians and patients, moderated by government cost control policies. The healthcare needs of Canadians will likely increase as the population ages (23). Compared to younger patients, the medical requirements of older patients are generally more complex. Because female physicians appear to spend (12) more time with patients, their practice styles may be better suited to the needs of older patients. On the other hand, this may require a change in the practice patterns of female physicians to provide a greater volume of services to a broader range of patients. Little is known about how the careers of female physicians evolve over time. Adding to the uncertainty are questions surrounding the impacts of various potential government strategies such as alternative payment plans, changing fee levels, deinsurance, and user fees. As conditions change, on-going monitoring is important to capture emerging access problems. Updating our models over time is essential for planning, program evaluation, and assessing the consequences of practice patterns on the quality of patient care.

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APPENDIX

Table 1 Federal Type of Service

1. Consultation
2. Major Assessments
3. Other Assessments
4. Hospital Care Days
5. Special Calls
6. Psychotherapy/ Counseling
7. Major Surgery
8. Minor Surgery
9. Surgical Assistance
10. Anaesthesia
11. Obstetrical Services
12. Diagnostic/Therapeutic Radiology
13. Laboratory Services
14. Other Diagnostic/Therapeutic Services
15. Special Services
16. Misc. & "Non-Mapped" Health Service Codes
17. Non-Physician Services

Table 2. Percentage Change in Payment to General Practitioners Serving Edmonton Patients by Service Type and General Practitioner Sex, Year 1998/99 vs 1994/95

	Female 94/95		Female 98/99		Male 94/95		Male 98/99		ALL 98/99	
FTS	N	$	% change in N	% change in $	N	$	% change in N	% change in $	% change in N	% change in $
1	178	159,184	22.5	60.5	439	287,896	23.2	140.4	23.0	111.9
2	598	2,921,870	9.2	15.9	1,317	5,267,892	(1.0)	2.4	2.2	7.2
3	702	15,673,112	8.4	(0.2)	1,608	40,486,807	(4.1)	(1.5)	(0.3)	(1.1)
4	193	171,215	(0.5)	(46.4)	677	939,767	(2.5)	(1.1)	(2.1)	(8.1)
5	314	326,560	(1.6)	(2.4)	986	2,486,011	(3.2)	16.0	(2.8)	13.9
6	341	1,539,520	28.2	29.6	585	2,737,170	35.2	39.9	32.6	36.2
7	36	20,173	(5.6)	(48.9)	259	257,329	(2.7)	35.2	(3.1)	29.1
8	317	316,708	2.8	(16.0)	956	1,653,513	(1.4)	(9.0)	(0.3)	(10.1)
9	32	119,935	46.9	87.9	125	98,593	5.6	38.5	14.0	65.6
10	28	46,898	25.0	(32.9)	150	672,871	20.0	74.9	20.8	67.8
11	88	426,727	(4.5)	64.9	178	317,142	(32.6)	10.4	(23.3)	41.6
14	327	337,642	6.1	10.8	871	2,147,066	1.0	61.2	2.4	54.3
15	231	43,875	14.3	63.6	478	84,022	(3.1)	65.7	2.5	65.0
16	34	68,130	5.9	(13.9)	173	64,820	(25.4)	314.8	(20.3)	146.4
ALL	**731**	**22,171,548**	**9.0**	**5.7**	**1,678**	**57,500,898**	**(4.3)**	**6.1**	**(0.2)**	**6.0**

Note

1) Data obtained from Alberta Health Claims Files.

2) Payment amount not adjusted by fee increase.

Table 3. Regression Results to Predict Major Assessment Payment (Federal Type of Service 2)

Variables (Baseline)	Relative Ratio	95% Confidence Interval
Physician Sex (Male)		
Female	0.40	0.29, 0.54
Level of FTE (FTE ≤ 1.0)		
FTE 1-1.5	1.83	1.70, 2.00
FTE 1.5+	2.65	2.24, 3.14
Percentage Subsidized Patients (≤ 15%)		
15% to 25% Subsidized Patients	0.80	0.68, 0.95
25% or More Subsidized Patients	0.58	0.48, 0.69
Years Since Graduation (≤ 10 Years)		
11-24 Years	0.90	0.83, 0.99
25+ Years	0.84	0.76, 0.92
Number of Patients Seen/ Day (≤ 19 Patients)		
19 to ≤ 25	1.50	1.36, 1.66
25 to ≤ 30	1.51	1.36, 1.68
30+	1.38	1.23, 1.55
Percentage Senior Patients (≤ 10%)		
> 10 % Senior Patients	1.53	1.38, 1.70
Percentage Female Patients (≤ 50%)		
> 50% Female Patients	1.19	1.09, 1.30
Percentage Patients with 3 or More Comorbidities (≤ 1%)		
> 1% of Patients	1.55	1.38, 1.75
Percentage Patients Hospitalized during the year (≤ 5%)		
> 5% Hospitalized Patients	1.58	1.46, 1.72
Percentage Patients with One Referral in the year (≤ 20%)		
> 20% Referred Patients	1.38	1.25, 1.52
Percentage Patients with More than One Referral (≤ 20%)		
> 20% Referred Patients	0.86	0.77, 0.97
Percentage Patients with More than One Mental Health Visit (≤ 5%)		
> 5% of Patients	1.11	1.02, 1.21
Percentage Patients with Low Continuity of Care (≤ 50%)		
> 50% of Patients	1.16	1.04, 1.29
Percentage Patients with High Continuity of Care (≤ 20%)		
> 20% of Patients	1.42	1.30, 1.56

Interaction Between Physician Sex and Percentage of Female Patients (Male, ≤ 50%)		
Female, > 50%	4.76	1.13 ,6.11
Interaction Between Physician Sex and Percentage of Senior Patients (Male, ≤ 10%)		
Female, > 10%	0.74	0.62, 0.88
Interaction Between Physician Sex and Percentage of Subsidized Patients (Male, ≤ 15% Subsidized Patients)		
Female, 15% to 25% Subsidized Patients	1.11	0.87, 1.41
Interaction Between Physician Sex and Percentage of Subsidized Patients (Male, ≤ 15% Subsidized Patients)		
Female, > 25% Subsidized Patients	1.46	1.10, 1.93
Interaction Between Physician Sex and Percentage of Patients with Three or More Comorbidities (Male, ≤ 1%)		
Female, > 1% with Three or More Comorbidities	0.58	0.49, 0.69
Interaction Between Physician Sex and Percentage of Patients with More Than One Referral (Male, ≤ 20%)		
Female, > 20% with More Than One Referral	1.29	1.10, 1.51

Table 4. Regression Results to Predict Other Assessment Payment (Federal Type of Service 3)

Variables (Baseline)	Relative Ratio	95% Confidence Interval
Physician Sex (Male)		
Female	0.73	0.66, 0.81
Level of FTE (FTE ≤ 1.0)		
FTE 1-1.5	1.25	1.20, 1.29
FTE 1.5+	1.74	1.62, 1.86
Number of Patients Seen/ Day (≤ 19 Patients)		
19 to ≤ 25	1.70	1.62, 1.78
25 to ≤ 30	2.09	1.99, 2.21
30+	2.65	2.51, 2.80
Percentage of Services Provided in Office (≤ 90%)		
> 90% Services in Office	1.14	1.10, 1.18
Percentage Senior Patients (≤ 10%)		
> 10 % Senior Patients	0.96	0.93, 0.99
Percentage Female Patients (≤ 50%)		
> 50% Female Patients	0.99	0.95, 1.02
Percentage Capital/Calgary RHA Patients (≤ 10%)		
> 10% Capital/Calgary Patients	0.96	0.93, 0.99
Percentage Patients with 3 or More Comorbidities (≤ 1%)		
> 1% of Patients	1.15	1.10, 1.20

Percentage Patients with One Mental Health Visit (≤ 10%)		
> 10% of Patients	0.92	0.89, 0.95
Percentage Patients with More than One Mental Health Visit (≤ 5%)		
> 5% of Patients	1.08	1.05, 1.12
Percentage Patients with One Referral in the year (≤ 20%)		
> 20% Referred Patients	0.96	0.93, 1.00
Percentage Patients with High Continuity of Care (≤ 20%)		
> 20% of Patients	1.08	1.04, 1.12
Interaction Between Physician Sex and Percentage of In-Office Services (Male, ≤ 90%)		
Female, > 90%	0.85	0.79, 0.91
Interaction Between Physician Sex and Percentage of Female Patients (Male, ≤ 50%)		
Female, > 50%	1.56	1.42, 1.73
Interaction Between Physician Sex and Number of Patients Seen Daily (Male, ≤ 19)		
Female, Between 20 and 24	0.98	0.92, 1.06
Interaction Between Physician Sex and Number of Patients Seen Daily (Male, ≤ 19)		
Female, Between 25 and 30	1.10	1.01, 1.20
Interaction Between Physician Sex and Number of Patients Seen Daily (Male, ≤ 19)		
Female, More than 30	1.04	0.96, 1.13
Interaction Between Physician Sex and Percentage of Patients with Three or More Comorbidities (Male, ≤ 1%)		
Female, > 1% with Three or More Comorbidities	0.88	0.83, 0.93
Interaction Between Physician Sex and Percentage of Patients with High Continuity of Care (Male, ≤ 20%)		
Female, > 20% of Patients	1.08	1.01, 1.15

Table 5. Regression Results to Predict Psychotherapy/Counseling Payment (Federal Type of Service 6)

Variables (Baseline)	Relative Ratio	95% Confidence Interval
Level of FTE (FTE < 1.0)		
FTE 1-1.5	1.64	1.36, 1.97
FTE 1.5+	1.15	0.81, 1.63
Years Since Graduation (≤ 10 Years)		
11-24 Years	0.75	0.63, 0.89
25+ Years	0.52	0.43, 0.63
Patients Seen/ Day (≤ 19 Patients)		
19 to ≤ 25	0.86	0.72, 1.03
25 to ≤ 30	0.83	0.67, 1.03
30+	0.43	0.34, 0.55
Percentage Senior Patients (≤ 10%)		
> 10 % Senior Patients	0.66	0.57, 0.77
Percentage Capital/Calgary RHA Patients(≤ 10%)		
>10% Capital/Calgary Patients	2.29	1.94, 2.71
Percentage Patients Hospitalized (≤ 5%)		
> 5% Hospitalized Patients	1.24	1.05, 1.47
Percentage Patients with One Referral (≤ 20%)		
> 20% Referred Patients	1.37	1.17, 1.60
Percentage Patients with One Mental Health Visit (≤ 10%)	2.05	1.73, 2.42
> 10% of Patients		
Percentage Patients with More than One Mental Health Visit (≤ 5%)		
> 5% of Patients	3.46	2.93, 4.07

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